

AreaRAE Multi Gas Monitor

GENERAL INFORMATION

Equipment Name	AreaRAE Multi Gas Monitor
Model:	PGM50-20
Manufacturer	RAE Systems, Inc.
Manufacturer Contact	Telephone: 877-723-2878/ 408-752-0723 Website: www.raesystems.com



NOTE: Guides are to be used by trained personnel only and DO NOT replace the manufacturer's operations or technical manuals. These guides were developed by field personnel for utilization by EPA and their contractors and are helpful in quick start-up and operations. Various limitations have been identified through the experience of the development group. Different makes, models, and updates to this equipment may change the limitations. It is recommended that calibration, maintenance, and use be recorded in a logbook. Additional product information may be found in the accompanying EOG.

SPECIFICATIONS

Uses:	To detect CO, H ₂ S, VOCs, O ₂ , combustible gas (LEL), and other toxic gases and vapors.																														
Limitations:	<div><div><div>1. Gas concentrations exceeding the upper limit of detection of the instrument will not be properly detected (refer to table, manual pages 1-5). Any up-scale reading followed by a declining or erratic reading may indicate a gas concentration beyond the upper scale limit which may be hazardous.</div><div>2. Properly operates in ambient conditions of -4° to 113°F and 0-95% relative humidity (non-condensing).</div><div>3. The internal and external filters should be inspected and replaced as necessary.</div><div>4. Some sensors are cross-sensitive to many chemicals. See Technical Note RAE TN-114 which can be found on the Air Sampling CD. Be aware that the LEL sensor can be “poisoned” by the following: silicone compounds, lead compounds, halogenated hydrocarbons, and reduced sulfur compounds.</div><div>5. If the ionization potential of a compound is higher than the photoionization detector (PID) lamp energy, the compound may not be detected.</div><div>6. PID Lamps 10.6 eV (Installed). PID calibrated to isobutylene. Sensor is not compound-specific, so VOCs are reported as lump sum. Other compounds have different response factors.</div><div>7. PID lamp requires periodic cleaning depending on operating conditions.</div><div>8. Detection of chemical warfare agents are unreliable, even if calibrated.</div><div>9. Make sure the instrument is updated with the latest firmware.</div><div>10. The lithium ion battery in the RAELink 2 Host and Repeater will slowly drain when not on. It is good practice to charge the modem before each use.</div></div></div>																														
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Product Safety:	UL® Classified as intrinsically safe for use in Class 1 Division 2, Group A, B, C, and D hazardous locations. See RAE Systems Technical Note TN-161. The RAELink 2 Host and Repeater units are not certified to be used in hazardous locations.
Battery:	Rechargeable battery. Fully charged in 12 hours. Run Time 36 hours on full charge.
Calibration Gas:	Four-gas calibration: containing CO: 50 ppm; H ₂ S: 25 ppm; LEL (methane): 50%; O ₂ : 20.9%; and balance N ₂ . VOC calibration: containing 100 ppm isobutylene and balance air.

QUICK START GUIDE		
Operation & Calibration:	1.	Guidelines for the Calibration and Operation of the individual AreaRAE units can be found in the Quick Start Guide for the MultiRAE.
	2.	Units should be Fresh Air Calibrated before deployment. Place pre-filter on inlet port, turn units on. When units are ready hold down the MODE and N/- buttons together until Enter Password= 0000 appears on the screen. Hold down the MODE button until “Calibrate Monitor?” appears on the screen. Press the Y/+ twice. After the calibration is done, press the MODE button until the normal screen appears.
Repeater Computer Operation and Data Logging:	1.	Attach the Antenna to the base, cable, and RAELink2 Host unit, and then attach the RS-232 cable to the serial port on the ER Computer or any computer with the ProRAE Remote Software loaded on it. (If your computer doesn't have a Serial Port, use the USB converter located in the Host carrying case). Connect 8-pin power connector to the Host (from RS-232 cable). Hold down the ON button located on the Host unit until the light turns on: solid red = fully charged, solid green = normal operation, blinking red = charging. A fully charged battery can operate up to 20 hours.
	2.	Turn on the AreaRAE and make sure that each unit's antenna is connected and that the LED light for Radio broadcasting is lit. Then take the AreaRAE Kit 1 of 2 and plug the extension cord (located inside case) into a power supply to the exterior adapter.
	3.	Open and turn on the computer. Remove the antenna from the case and place on top of vehicle or highest point available. Once the computer starts up, the operating software will be displayed at full screen. If it is not displayed, open the shortcut on the desktop (ProRAE Remote V1.41).
	4.	To begin receiving data from the AreaRAEs press F9 . The computer will scan for the signals from the AreaRAEs and begin downloading information once connected. Once data is being received from all AreaRAEs, deploy AreaRAEs to appropriate locations for monitoring.
	5.	The panel view (F2) displays the four units with room for a total of 32 units. Set up (F3) can change various setting (more information is in the Manufacturer's Manual). Log View (F4) will display the data logged information from the AreaRAEs. The data can be shown in detail and in graph form.
	6.	RAELink2 Repeater Operation: When the Host and AreaRAE are too far from each other to communicate, the use of the RAELink2 Repeater may be necessary. To operate, attach the antenna to the base, cable, and repeater unit. Turn on by holding down the ON button located on the Repeater until the light turns on: solid red = fully charged, solid green = normal operation, blinking red = charging. On a fully charged battery, the Repeater can operate up to 20 hours.
	7.	Place in a line of sight between the RAELink Host and the AreaRAE to establish a communication bridge.
Turning on/off the Alarms:	1.	Hold down the MODE and N/- buttons together until Enter Password= 0000 appears on the screen. Hold down the MODE button until Calibrate Monitor? appears on the screen. Press N/- button until Change Monitor Setup? appears on the screen then press Y/+ button. Press N/- until Change Light and Buzzer Mode? appears, press Y/+ button. Press N/- button to scroll through the options (Both On, Both Off, and Light Only). Press Y/+ button to select option. Press MODE button until the default screen appears.
Switching Sensors:	1.	First make sure that the AreaRAE Unit is off and unplugged. Then open the case using the allen wrench and remove the four hex screws (2 on top and 2 on bottom). Be careful not to pull the electrical cords from the connections when opening the case.

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Switching Sensors: (continued)	2.	Next remove the 3 screws from the silver metallic plate and remove the plate gently to avoid pulling the tubing from the inlet and outlet.
	3.	Once the cover is off and the sensors are exposed, remove the unnecessary sensor and replace with the desired sensor. Make sure that the black line on the sensor label is lined up with the white marker on the sensor. Replace the plate and screws; then the case and the hex screws.
	4.	Once turned on, the AreaRAE will recognize the sensors installed and configured; however, the sensors will still need calibration.
Turn Off:	1.	Press and hold MODE key until the AreaRAE is OFF. Shutdown computer.